A PROCESS FOR MANUFACTURING HIGH-STABILITY CRYSTALLINE ANODIC ALUMINUM OXIDE FOR PULSE DISCHARGE CAPACITORS

ABSTRACT OF THE DISCLOSURE

A process for producing high stability crystalline anodic aluminum oxide comprises anodizing an anodic foil, hydrating the foil, and forming a barrier oxide layer on the foil. Anodizing the anodic foil produces nano-porous amorphous oxides which can then be converted to a crystalline precursor material by hydrating the foil. Next, an oxide layer formation step is utilized to form a barrier oxide layer on the surface of the anodized and hydrated foil. The resulting anodic oxides have very low levels of defects, voids and tensile stresses and have rise times as low as about 1 second to about 3 seconds after exposure of the formed samples to boiling water for 2 hours.